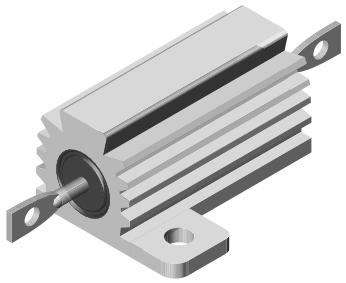
Wirewound Resistors, Military, MIL-PRF-18546 Qualified, Type RE, Aluminum Housed, Chassis Mount



FEATURES

- Molded construction for total environmental protection
- Complete welded construction
- Qualified to MIL-PRF-18546
- Available in non-inductive styles (type N) with Ayrton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect
- Excellent stability in operation (< 1 % change in resistance)

STANDARD ELECTRICAL SPECIFICATIONS

MILITARY MODEL	VISHAY REFERENCE MODEL	POWER RATING $P_{25\ °C}$ W	RESISTANCE RANGE Ω	TOLERANCE ± %	WEIGHT (typical) g
RE60G	RH005	5	0.10 to 3.32K	1	3
RE60N	NH005	5	1.0 to 1.65K	1	3.3
RE65G	RH010	10	0.10 to 5.62K	1	6
RE65N	NH010	10	1.0 to 2.8K	1	8.8
RE70G	RH025	20	0.10 to 12.1K	1	13
RE70N	NH025	20	1.0 to 6.04K	1	16.5
RE75G	RH050	30	0.10 to 39.2K	1	28
RE75N	NH050	30	1.0 to 19.6K	1	35
RE77G	RH100	75	0.05 to 29.4K	1	350
RE77N	NH100	75	1.0 to 14.7K	1	385
RE80G	RH250	120	0.10 to 35.7K	1	630
RE80N	NH250	120	1.0 to 17.4K	1	690

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RE RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 20 for 10 Ω and above; ± 50 for 1 Ω to 9.9 Ω; ± 100 for 0.1 Ω to 0.99 Ω
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Insulation Resistance	Ω	10 000 MΩ minimum dry, 1000 MΩ minimum after moisture test
Solderability	-	MIL-PRF-18546 type - meets requirements of ANSI J-STD-002
Operating Temperature Range	°C	-55 to +250

MILITARY PART NUMBER INFORMATION

Military Part Numbering example: RE77N1302J01

R	E	7	7	N	1	3	0	2	J	0	1

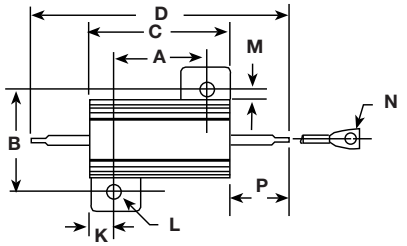
MIL TYPE	CHARACTERISTIC	RESISTANCE VALUE	PACKAGING CODE
RE60 **RE65** **RE70** **RE75** **RE77** **RE80**	**G** = inductive **N** = non-inductive	3 digit significant figure, followed by a multiplier **49R9** = 49.9 Ω **1000** = 100 Ω **1001** = 1000 Ω **1302** = 13 000 Ω	**C02** = card pack (RE60 to RE75) **J01** = skin pack (RE77, RE80)

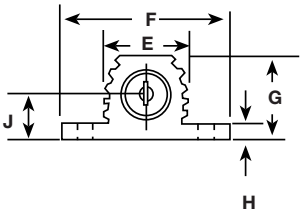
Note

- Only tolerance available for RE type is ± 1 %

DIMENSIONS in inches [millimeters]

RE60, RE65
RE70, RE75

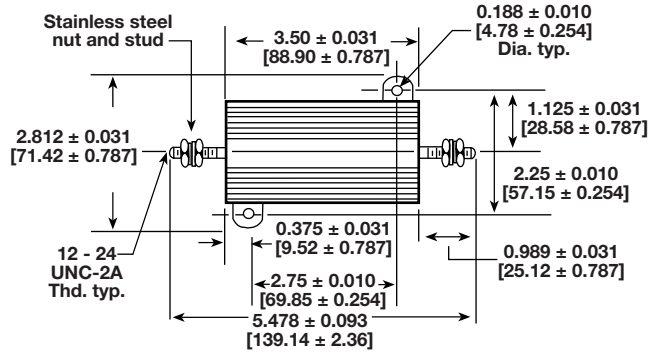


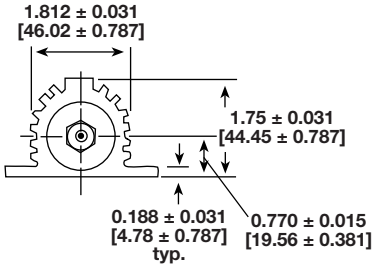


MILITARY MODEL	DIMENSIONS in inches [millimeters]													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
RE60	0.444 ± 0.005 [11.28 ± 0.127]	0.490 ± 0.005 [12.45 ± 0.127]	0.600 ± 0.030 [15.24 ± 0.787]	1.125 ± 0.062 [28.58 ± 1.57]	0.334 ± 0.015 [8.48 ± 0.381]	0.646 ± 0.015 [16.41 ± 0.381]	0.320 ± 0.015 [8.13 ± 0.381]	0.065 ± 0.010 [1.65 ± 0.254]	0.133 ± 0.010 [3.38 ± 0.254]	0.078 ± 0.010 [1.98 ± 0.254]	0.093 ± 0.005 [2.36 ± 0.127]	0.078 ± 0.015 [1.98 ± 0.381]	0.050 ± 0.005 [1.27 ± 0.127]	0.266 ± 0.062 [6.76 ± 1.57]
RE65	0.562 ± 0.005 [14.27 ± 0.127]	0.625 ± 0.005 [15.88 ± 0.127]	0.750 ± 0.031 [19.05 ± 0.787]	1.375 ± 0.062 [34.93 ± 1.57]	0.420 ± 0.015 [10.67 ± 0.381]	0.800 ± 0.015 [20.32 ± 0.381]	0.390 ± 0.015 [9.91 ± 0.381]	0.075 ± 0.010 [1.91 ± 0.254]	0.165 ± 0.010 [4.19 ± 0.254]	0.093 ± 0.010 [2.36 ± 0.254]	0.094 ± 0.005 [2.39 ± 0.127]	0.102 ± 0.015 [2.59 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.312 ± 0.062 [7.92 ± 1.57]
RE70	0.719 ± 0.005 [18.26 ± 0.127]	0.781 ± 0.005 [19.84 ± 0.127]	1.062 ± 0.031 [26.97 ± 0.787]	1.938 ± 0.062 [49.23 ± 1.57]	0.550 ± 0.015 [13.97 ± 0.381]	1.080 ± 0.015 [27.43 ± 0.381]	0.546 ± 0.015 [13.87 ± 0.381]	0.075 ± 0.010 [1.91 ± 0.254]	0.231 ± 0.010 [5.87 ± 0.254]	0.172 ± 0.010 [4.37 ± 0.254]	0.125 ± 0.005 [3.18 ± 0.127]	0.115 ± 0.015 [2.92 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.438 ± 0.062 [11.13 ± 1.57]
RE75	1.562 ± 0.005 [39.67 ± 0.127]	0.844 ± 0.005 [21.44 ± 0.127]	1.968 ± 0.031 [49.99 ± 0.787]	2.781 ± 0.062 [70.64 ± 1.57]	0.630 ± 0.015 [16.00 ± 0.381]	1.140 ± 0.015 [28.96 ± 0.381]	0.610 ± 0.015 [15.49 ± 0.381]	0.088 ± 0.010 [2.24 ± 0.254]	0.260 ± 0.010 [6.60 ± 0.254]	0.196 ± 0.010 [4.98 ± 0.254]	0.125 ± 0.005 [3.18 ± 0.127]	0.107 ± 0.015 [2.72 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.438 ± 0.062 [11.13 ± 1.57]

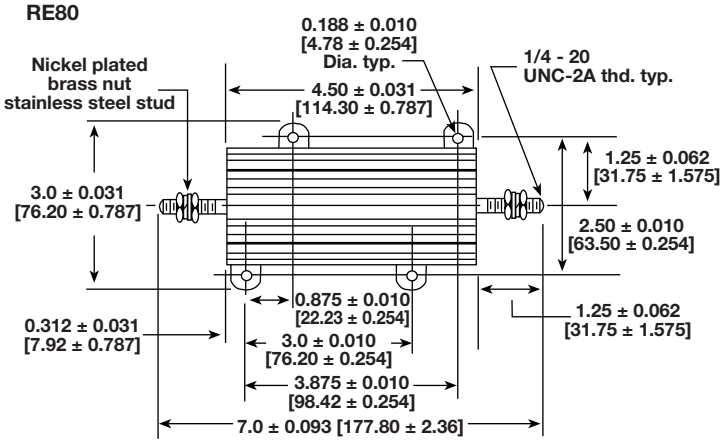
DIMENSIONS in inches [millimeters]

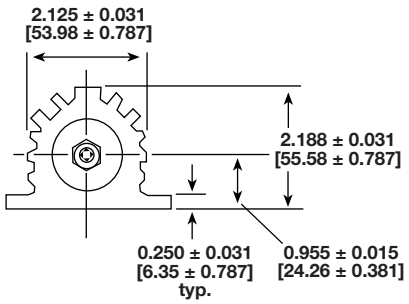
RE77





RE80





POWER RATING

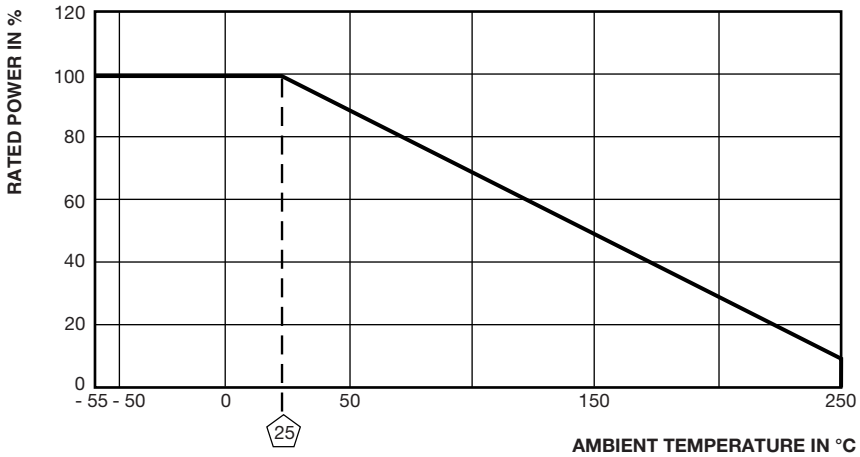
Vishay RE resistor wattage ratings are based on mounting to the following heat sink:

RE60 and RE65: 4" x 6" x 2" x 0.040" thick aluminum chassis
RE70 and RE75: 5" x 7" x 2" x 0.040" thick aluminum chassis
RE77 and RE80: 7" x 9" x 2" x 0.060" thick aluminum chassis

FREE AIR POWER RATING						
MILITARY MODEL	**RE60**	**RE65**	**RE70**	**RE75**	**RE77**	**RE80**
W at 25 °C	3	6	8	10	30	75

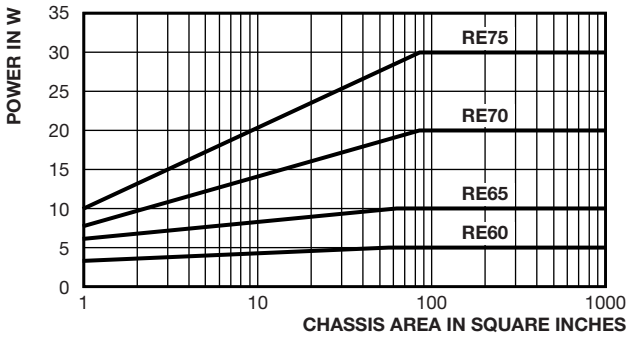
AMBIENT TEMPERATURE DERATING

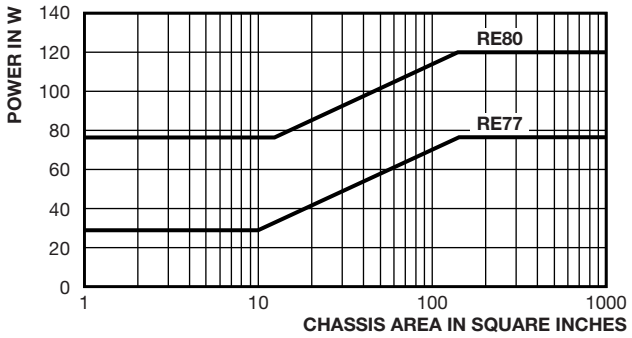
Derating is required for ambient temperatures above 25 °C when mounted to specified heat sink, see the following graph.



REDUCED HEAT SINK DERATING

Derating is also required when recommended heat sink area is reduced.





MATERIAL SPECIFICATIONS

Element: copper-nickel alloy or nickel-chrome alloy, depending on resistance value

Core: ceramic, steatite or alumina, depending on physical size

Encapsulant: silicone molded construction

Housing: aluminum with hard anodic coating

End Caps: stainless steel

Standard Terminals: For RE77 and RE80 terminals are threaded stainless steel. All others are 60/40 tin/lead (Sn/Pb) w/nickel underplate on copper clad steel core terminal.

Part Marking: Dale, model, wattage, value, tolerance, date code

NON-INDUCTIVE (TYPE N)

Models of equivalent physical and electrical specifications are available with non-inductive (Ayrton-Perry) winding. They are identified by substituting the letter N for G in the model number (RE60N, for example).

PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min at -55 °C	± (0.5 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± (0.5 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V_{RMS} for RE60, RE65 and RE70; 2000 V_{RMS} for RE75; 4500 V_{RMS} for RE77 and RE80; duration 1 min	± (0.2 % + 0.05 Ω) ΔR
Temperature	250 °C for 2 h	± (0.5 % + 0.05 Ω) ΔR
Moisture Resistance	MIL-STD-202 method 106, 7b not applicable	± (1.0 % + 0.05 Ω) ΔR
Shock, Specified Pulse	MIL-STD-202 method 213, 100 *g*'s for 6 ms, 10 shocks	± (0.2 % + 0.05 Ω) ΔR
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 *g* peak, 2 directions 6 h each	± (0.2 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.05 Ω) ΔR
Terminal Strength	30 s, 5 pound pull test for RE60 and RE65, 10 pound pull test for other sizes; torque test - 24 pound inch for RE77 and 32 pound inch for RE80	± (0.2 % + 0.05 Ω) ΔR

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